
Appendix A: MAT 5 PC Requirements

Use the information in this Appendix to plan your PC system configuration

Overview

For new MAT 5 systems, NORTEL has developed a required PC configuration. If you are upgrading to MAT 5, upgrade your PC to the required PC configuration (or better) at this time.

For operation or performance-related problems escalated to Nortel's support organizations on PCs with less than 32 MB of RAM, where insufficient RAM is suspected as being a factor contributing to the problem, the customer will be required to add RAM to the MAT PC.

Required PC Configuration

IBM or compatible computer (Intel Pentium 100 MHz or faster) with the following:

- 32MB memory
- 3.5 inch, 1.44MB diskette drive
- CD ROM drive
- CD ROM drive
- 1 GB hard disk (500 MB free space recommended; for more information, refer to “Memory Requirements” on page 139)
- 1 GB hard disk (500 MB free space required)
- Network communications hardware, as follows:
 - Ethernet Network Interface card (NIC) if you plan to use Ethernet network communications
 - Ethernet transceiver (if required for the NIC) that matches your cabling and network type
 - Hayes-compatible modem for serial or PPP communications
- Serial port using 16550 UART technology
- Parallel printer port (a printer must be configured, even though it is not required to be physically attached to the PC)
- SVGA graphics monitor with interface card
- Windows-compatible mouse (a bus mouse)
- Hardware security dongle (provided by NORTEL)
- Windows 95 software, including the following components:
 - Client for Microsoft Networks
 - Microsoft Dial-up Networking
 - Microsoft TCP/IP

CPU

A slower 486 processor is acceptable in place of the recommended Pentium processor if the system running MAT 5 does not experience much activity—that is, if applications and windows are not opened and closed very often. As activity increases, the CPU speed of the system running MAT 5 should also increase. A 120 MHz Pentium/32 MB can support management of up to three simultaneous systems with medium levels of interactivity.

Once enough memory is present to minimize virtual memory paging and swapping, runtime performance is almost constant across processor types. Increasing RAM has more impact on MAT application performance than increasing CPU speed. It should be noted that application load and initialization time increases by three times on a 66 MHz 486 system as compared to a 120 MHz Pentium system.

CPU speed can be a factor for MAT 5 Call Tracking in high volume call environments. Where peak call volume is 5000+ call records per hour, a Pentium processor would be recommended. Where peak call volume is 10,000+ call records per hour, a dedicated Pentium PC running only the MAT Call Tracking application would be recommended.

Memory Requirements

Windows 95 virtual memory allows applications to utilize disk space to satisfy application program memory needs. Virtual memory paging and swapping *does* impact system performance. With MAT, the first instance of an application being launched from the Navigator uses more virtual memory than the second and subsequent instances. For example, launching a second Maintenance window for a second System does not require as much memory as the first instance, as some of the required resources have been previously loaded.

Virtual memory “Rule of Thumb” - Virtual memory utilization in excess of three times physical memory (RAM) will begin to reduce performance significantly.

Examples of MAT 5 Virtual Memory Usage

This section presents some examples of MAT 5 Virtual memory usage for launched applications using selected configurations:

Administration Package:

Station Administration, Traffic Analysis, Call Accounting, Call Tracking

First instance of Administration Package:

- 59 MB total virtual memory (includes Windows 95 usage)
- 30 MB virtual memory (MAT 5 only)

Second and subsequent instances of Administration Package:

- 6 MB additional virtual memory (each instance)

Maintenance Package:

ESN Analysis and Reporting, Maintenance Windows, Alarm Management

First instance of Maintenance Package:

- 64 MB total virtual memory (includes Windows 95 usage)
- 35 MB virtual memory (MAT 5 only)

Second and subsequent instances of Maintenance Package:

- 15 MB additional virtual memory (each instance)

System Management Package:

Administration Package plus the Maintenance Package

First instance of System Management Package:

- 69 MB total virtual memory (includes Windows 95 usage)
- 40 MB virtual memory (MAT 5 only)

Second and subsequent instances of System Management Package:

- 18 MB additional virtual memory (each instance)

Additional Packages

Maintenance Package plus the Station Administration application

- Same as Maintenance Package + 1.25 MB of virtual memory (each instance)

Traffic Analysis & Call Accounting

First instance of Traffic Analysis & Call Accounting:

- 53 MB total virtual memory (includes Windows 95 usage)
- 25 MB virtual memory (MAT 5 only)

Second and subsequent instances of Traffic Analysis & Call Accounting

- 6 MB additional virtual memory (each instance)

Administration Package plus the ESN Analysis and Reporting application

- Same as Administration Package + 6 MB of virtual memory (each instance)

Memory Calculation Examples:

Example 1: A customer is upgrading from MAT 4 to MAT 5 without adding any new applications.

This example corresponds to the *Administration Package* applications listed above.

Suppose the customer's current PC is a Pentium and has 16 MB of RAM. The customer anticipates running no more than two applications simultaneously but does not wish to risk experiencing performance degradation from insufficient RAM.

In this case, the customer will need 59 MB for the first instance + 6 MB for the second instance = 65 MB Virtual RAM. Using the “3 times physical RAM” rule of thumb, $65 \text{ MB} / 3 = 21.7 \text{ MB RAM}$. Although the customer could probably get by with an upgrade to 24 MB of RAM, the customer decides to upgrade to the recommended 32 MB of RAM to allow for future growth.

Example 2: A customer is upgrading from MAT 4 to MAT 5 and plans to add the Maintenance Package applications.

The customer's current PC is a 486 and has 8 MB of RAM. The customer anticipates monitoring 3 systems concurrently.

In this case, the customer will need 64 MB for the first system + 15 MB for the second system + 15 MB for the third system = 94 MB Virtual RAM. Using the "3 times physical RAM" rule of thumb, $94 \text{ MB} / 3 = 31.3 \text{ MB}$ RAM. As this customer also anticipates future growth, the customer decides to purchase a new Pentium PC meeting the recommended system requirements at this time.

Example 3: A customer wishes to install MAT Traffic and Call Accounting only and has an existing 486 75 MHz PC with 16 MB RAM.

The customer will have scheduled traffic and call accounting data collections and is not concerned about performance degradation as long as all tasks are completed automatically. The MAT PC will be collecting data from 2 systems.

In this case, the customer will need 53 MB (First system) + 6 MB (second system) = 59 MB Virtual RAM. Using the "3 times physical RAM" rule of thumb, $59 \text{ MB} / 3 = 20 \text{ MB}$ RAM. The customer decides to go ahead and operate the MAT system with only 16 MB of RAM even though some reduction in system performance is expected.

Hard drive requirements

You can approximate hard drive capacity requirements for MAT applications using Figure 63.

Figure 63
Disk Storage Requirements

MAT Application	Program Store	System Data Store
Common Services (required)	37 MB	negligible
Station Administration	1.5 MB	1.3 MB per 1,000 stations
Traffic Analysis	5 MB	Switch dependent: Typically 2.5 to 9 MB per month for each systems's traffic data
Call Accounting	2.5 MB	1.6 MB per 10,000 records
Call Tracking	3 MB	negligible
ESN ART	6 MB	Switch dependent: allow 1 MB per customer
Maintenance Windows	1 MB	negligible
Alarm Management	1.3 MB	negligible

Using virtual memory requires additional hard disk space. An additional 100 MB (minimum) of hard disk space must be reserved for MAT virtual memory usage.

Disk fragmentation can occur as hard drive use nears capacity. Disk fragmentation can slow operation and also increases wear on the drive leading to shorter life span. It is recommended that a larger capacity hard disk drive is used when calculations indicate that hard disk space required is near the capacity of a drive.